

CalNex Forecast Notes - Monday, June 7, 2010

Anticipated Activities of Platforms

NOAA P3

Mon: Sunday's & today's flights canceled - after repairs will fly to Gulf of Mexico for 2 days of sampling

Note: with aircraft maintenance, etc., next CalNex flight on Sunday at earliest

NOAA Twin Otter

Mon: morning flight in LA Basin; afternoon flight in LA, Mojave, & Imperial Valley

Tue: No Flight

Wed: transit to Sacramento, sampling Central Valley

Thu - Mon: No Flights - maintenance

R/V Atlantis

Mon: transit from offshore SFBA to Oakland

Tue: SF

DOE G-1 & NASA B-200 (CARES - <http://campaign.arm.gov/cares>)

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Local Features

Mon:

Sac: Sac plume toward receptor site; good to moderate air quality

SJV: good air quality - poorer air quality in southern portion of SJV;

SoCal: LA plume to desert

Tue:

Sac: Sac plume skirts north of receptor site; good to moderate air quality

SJV: descending air with high O3 over southern SJV

Wed:

Sac: Sac plume to north (misses receptor site); good air quality

SJV: good air quality

California Synoptic Overview - Adam Gerber; agerber@arb.ca.gov

Monday June 7

- Desert SW ridge shifting S/E by GOA trough
- Strong onshore flow for the south
- Weak onshore north

Tuesday June 8

- Westerly's takes over
- SW trough off the PANW will increase onshore flow in the north, continues in the south perhaps even a bit stronger

Wednesday June 9

- Trough pushes into PacNW and N.CA
- Precip confined to NorthCoast and N.CA high country
- Zonal flow with strong onshore gradients South

Thursday and Friday June 10 and 11

- Trough elongates southward throughout the period
- Moisture limited
- Onshore flow continues North and South
- Cutoff low forms by Friday/Saturday time period ??

Large Scale Transport Notes - Brad Pierce (brad.pierce@noaa.gov)

LA/SAC AIRNOW Site Comparison

O3 at Riverside reached USG levels. Riverside PM2.5 reached Moderate levels
Good SAC O3 Moderate PM2.5 AQ during FX period
O3 and PM2.5 analysis low at Riverside. O3 analysis in good agreement, PM2.5 high at SAC.

LA/SF AIRNOW Ensemble

Initial LA Long-range transport to east during first 24hrs then turning northeast to UT/CO for ensembles ending Tue/Wen. Increased N/S dispersion for ensembles ending Thu

SF ensemble transport to South then turning East over Southern CA. Increased dispersion during last 24hrs of ensemble trajectories.

5km RDF FX 00Z 06/08 (Mon Afternoon)

IC polluted air over Northern CA. Low CO/O3/PM2.5 air over Central CA. Slight enhancements in O3/CO within High

500m RDF FX 00Z 06/08 (Mon Afternoon)

CO, O3 increases over Northern CA. Moderate O3 P-L due to LA plume over Western AZ. Descent over Southern CA associated with low CO
Moderate (5-10 ppbv/day) background O3 P-L over LA & SF

500m RDF FX 00Z 06/09 (Tue Afternoon)

IC CO/O3 enhancement offshore. High CO/O3 airmass over Central CA.
Moderate (5-10 ppbv/day) background O3 P-L over LA & SF
Descent over Southern CA associated with elevated CO/O3

500m RDF FX 00Z 06/10 (Wen Afternoon)

IC CO/O3 enhancement onshore Central/Southern CA, low CO/O3 airmass inland over central CA. Descent offshore of LA associated with elevated CO/O3.
Moderate (5-10 ppbv/day) background O3 P-L over LA& SF

500m RDF FX 00Z 06/11 (Thu Afternoon)

Descent over Southern CA associated with elevated CO/O3.
Moderate (5-10 ppbv/day) background O3 P-L over LA. Low (~5ppbv/day) background O3 P-L over SF

Area Forecast Details

San Francisco Bay Area - Danny Kam (dkam@airquality.org)

Monday

- NW 15 to 20kt
- MBL below 500ft, increase slightly during the day

Tuesday

- NW 15kt shifts W and lightens in the aftn; W 5kt at night and shifts S overnight
- MBL 500ft increase to 1,500 ft

Wednesday

- W to SW 5 to 10kt in AM; NW 15kt resumes in late aftn and strengthen to 20 to 25kt late night
- MBL 500ft to 1,000ft

Thursday

- NW 25kt becomes 30 to 35kt in the afternoon and evening

Extended

- Moderate wind continues through Sat; with strong wind again on Friday aftn

Sacramento Valley - Danny Kam (dkam@airquality.org)**Monday**

- Northern SV - ESE below 5kt; S by late mrng; S to SE 5kt at night
- Southern SV - SW 5kt in the morning strengthen to almost 10kt in the aftn, SW 5kt at night
- AM PBL around 1,000; PM PBL 2,500 to 4,000ft
- Mostly clear except for cirrostratus in the mrng and thins in the aftn
- Max aftn temp: 29C, borderline good-moderate air quality, max-8hr mean O3 in 0.05-0.06 ppm range

Tuesday

- Northern SV - to SE 5 to 10kt early AM, shifts S by mid-mrng; becomes 10kt in aftn through the evening
- Southern SV - SW 5kt to 10kt, strengthen to 10kt in late aftn through evening
- AM PBL around 1,000ft; PM PBL 3,000 to 5,000ft
- Scattered cirrus in the morning; cirrostratus moves through in the afternoon
- Max aftn temp: 27C; good air quality, max-8hr mean O3 in 0.05 ppm range

Wednesday

- Northern SV - SE 10kt early AM, shift S around late AM; lightens to 5kt at night

- Southern SV - S to SW 5kt to 10; dies down a bit in late AM before picking up again into 10kt in the aftn; SW 5kt at night
- AM PBL between 500 to 1,000ft; PM PBL around 4,500ft
- Partly cloudy, altocumulus in AM, perhaps with a bit of stratus in early AM for northern SV; becomes mostly clear in the aftn; 10% chance of rain
- Max aftn temp: 26C; good air quality, max-8hr mean O3 in 0.05 ppm range

Thursday

- NW wind throughout the valley, 5kt and below in the morning; reaching 10kt by late AM; NW 10kt continues in the evening
- Some cirrus moves through in the AM, otherwise clear
- Max aftn temp: 25C; good air quality max-8hr mean O3 in 0.05 ppm range

Extended

- Windy NW condition on Friday (13mb difference between N state line to Sac); gradient slightly relaxes on Saturday but still windy
- No clouds
- Max aftn temp warms to nearly 30C; good air quality

San Joaquin Valley - Shawn Ferreria (Shawn.Ferreria@valleyair.org)

Monday June 7

Surface Winds: Surface obs this morning: Light to moderate NW flow across most of the SJV. The wind profiler at Chowchilla shows a light to moderate N to NW flow from the surface up to 3,000 feet, shifting from the south to southwest. The lower air profiler at Lost Hills depicts light to moderate north winds up to 3,000 feet, turning light and variable between 3,000 and 6,000 feet, strengthening from the northwest above. CANSAC shows light to moderate flow over the Delta, Altamont and Pacheco Passes this morning continuing into this evening. **(CANSAC is not capturing the strength of the wind flows in the SJV, especially from Fresno County southward, too weak)** As a result, CANSAC is projecting an eddy circulation in weak flow. This feature is not happening on surface obs. Local terrain driven flow will continue over the Sierra's (upslope during day, downslope at night).

Boundary Layer Mixing: CANSAC shows that maximum boundary layer mixing depths will range from 2,500 to 5,000 feet Basin-wide today

Air Quality: Good air quality due to ozone.

Tuesday June 8

Surface Winds: CANSAC shows stronger onshore flow on Tuesday compared to Monday through the Delta, Pacheco and Altamont passes. Moderate outflow will continue out toward the Deserts by the late afternoon into the evening hours. By

the afternoon hours, a predominate northwesterly wind flow will be present over the entire SJV.

Boundary Layer Mixing: CANSAC shows that maximum mixing depths will range from 3,000 to 5,000 feet District-wide from Madera county southward. Due to increasing onshore flow, CANSAC appears to be predicting maximum mixing depths between 500 and 1,500 feet in Merced, Stanislaus, and San Joaquin Counties.

Air Quality: Air quality is predicted to be in the good range.

Wednesday June 9 through Friday June 11

Surface Winds: Onshore flow conditions will continue over the SJV air basin from Wednesday through Friday as a trough remains over the West Coast. The northwesterly flow will slowly weaken by late Friday as offshore flow develops over the region.

Boundary Layer Mixing: Boundary layer mixing depths will steadily improve through Friday as the trough moves overhead.

Air Quality: Good AQ expected due to ozone.

Potential Targets for next Flight Day

Analyze northwesterly wind flow patterns over the SJV, especially flow coming into the air basin through the Delta, Altamont, and Pacheco passes. A potential northwesterly jet may occur during the next couple of days.

Central Coast - Gary Acermont (gacermont@co.slo.ca.us)

6/5, 6/6 - Good air quality, except moderate AQ Nipomo Mesa due to blowing dust. Warm coastal plain, interior

This morning: Stratus in SLO, stratus coastal plains, Monterey Bay, Santa Ynez Valley, Patchy stratus Salinas Valley.

Clear Big Sur coast, Pt. Conception

Stratus offshore

SW flow, 4 mph hrly avg top of Temblor Range, NW flow 3mph hr avg Carrizo Plains

VBG inversion - Today @379 m, 9.4 C, NW 13 knt @ 998 m, 21.6 C, NW 13knt

Fort Ord inversion – Today top 2000 ft, delta 6deg C, light west wind @ 1500 ft AGL

This week: GFS Geopotential ht @500mb gradually drop, ozone remains in good range this week, June Gloom Stratus offshore, coastal plains night & morning NW flow coast through Friday, peaking late Thursday

Today Monday – Zonal Flow, Ozone in good range. CANSAC indicates E flow late evening Temblor Range

Tuesday - Weak trof, Ozone in good range.

Wednesday – Trof deepens - NW flow increases - Blowing dust Nipomo Mesa – Sundowner winds Gaviota Pass

Thursday – Trof deepens - NW flow peaks in PM - Blowing dust Nipomo Mesa – Sundowner winds Gaviota Pass

Friday – Trof begins to cutoff over NV - NW flow peaks in early AM – Sundowner winds Gaviota Pass

Air quality: Good air quality with the following exceptions - blowing dust midday/afternoons-Oceano Dunes/Nipomo Mesa resulting in Moderate AQ Wednesday, Thursday, Friday

Significant features for study: Blowing dust Oceano Dunes/Nipomo Mesa.

SoCal Coastal Waters - No Forecast (some low level cloud fractions and wind plots from COAMPS in slides)

South Coast - Kevin Durkee (kdurkee@aqmd.gov)

Sunday: ozone to USG (8-hr 103, 1-hr 115 ppb @ Crestline);

NOTE: fire in Wilmington at auto recycling yard burning since Saturday morning, burned through Sunday afternoon

<http://cbs2.com/local/large.fire.at.2.1734770.html>

Monday: coastal eddy persists; high pressure aloft weakens slightly; marine layer deepened - AM stratus/fog through valleys west of mountains; AM stratus clearing to beaches in afternoon; temps still warm inland; stronger onshore gradients today - some gusty afternoon winds in mountains & deserts; ozone to USG inland

Tuesday: ridge weakens further; zonal flow aloft; stronger onshore gradients at surface; gradual cooling trend; some gusty winds mountains & deserts; ozone mostly Moderate with some USG inland possible

Wednesday: weak troughing aloft (~ flat over so Cal); deeper marine layer; AM low clouds & fog, slow to clear in afternoon; ozone mostly moderate, some USG possible inland

Thursday +: west coast trough through Saturday; deeper marine layer; AM low clouds & fog; possible stronger N gradient developing; some gusty winds mountains & deserts; temps near normal by Friday; ozone mostly moderate, some USG still possible inland

Sunday: ridge re-establishes aloft; warming; increasing ozone potential